

REMARKS/ARGUMENTS

Favorable reconsideration of this application is requested in view of the above amendments and in light of the following remarks and discussion.

Claims 1-12, 14-19, and 21-27 are pending. Claims 1, 12, and 14 are amended. Claims 22-27 are newly added. Claims 13 and 20 were canceled previously. Support for the amendments to Claims 1, 12, and 14 and for newly added Claims 22-27 can be found in Figs. 2 and 6 and the corresponding description of these figures in the specification. No new matter is added.

In the outstanding Office Action, Claims 1-11 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 1, 5, 6, 8, 10-12, 14, 16, 17, and 19 were rejected under 35 U.S.C. § 102(e) as anticipated by Ma et al. (U.S. Patent No. 6,554,954, herein “Ma”). Claims 2-4, 7, 15, and 21 were rejected under 35 U.S.C. § 103(a) as obvious over Ma. Claims 9 and 18 were rejected under 35 U.S.C. § 103(a) as obvious over Ma in view of Tong et al. (U.S. Patent Pub. 2004/0083975, herein “Tong”).

Regarding the rejection of Claims 1-11 as indefinite for not specifying whether the conductive material is electrically or thermally conductive, Claim 1 is amended to recite that the susceptor is made of an electrically conductive material. Accordingly, Applicants respectfully submit that the rejection of independent Claim 1 and Claims 2-11 depending therefrom as indefinite is overcome.

Regarding the rejection of Claims 1, 5, 6, 8, 10-12, 14, 16, 17, and 19 as anticipated by Ma, that rejection is respectfully traversed by the present response.

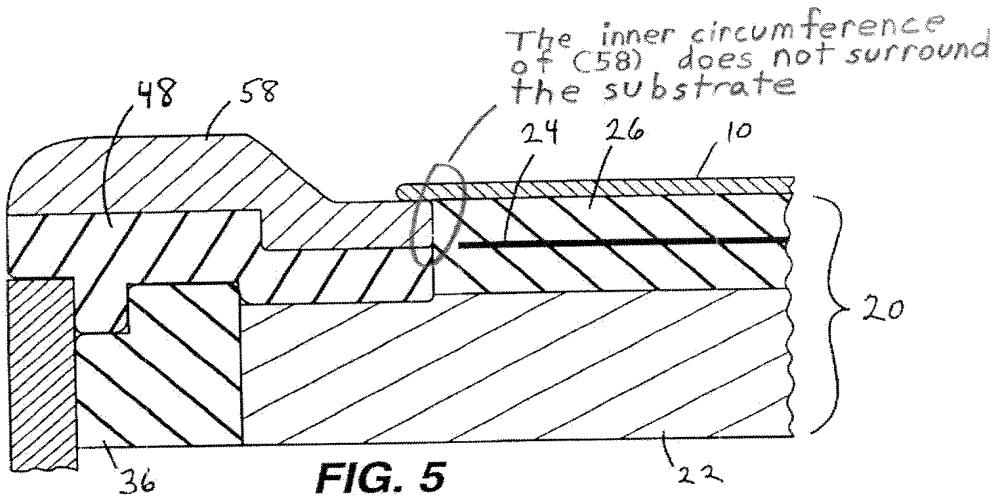
Applicants wish to direct the Examiner’s attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d

1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Further, Applicants wish to direct the Examiner’s attention to basic requirement of a *prima facie* case of obviousness as set forth in the MPEP § 2143. This section states that to establish a *prima facie* case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the references teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations.

The invention recited in amended independent Claim 1 is directed to a plasma processing apparatus including a plasma processing chamber; a susceptor installed within the plasma processing chamber, the susceptor being made of an electrically conductive material; an electrostatic chuck formed on the susceptor for mounting thereon a substrate to be processed; a ring member directly disposed on the susceptor **wherein an innermost circumference of the ring member surrounds a periphery of the substrate to be processed with a gap between the innermost circumference of the ring member and the periphery of the substrate to be processed** when the substrate to be processed is mounted on the electrostatic chuck; and **a lower ring body placed directly below the substrate to be processed and the ring member**. Further, when the substrate to be processed is mounted on the electrostatic chuck, **a part of an upper surface of the lower ring body is placed directly below the gap between the innermost circumference of the ring member and the periphery of the substrate to be processed**.



In contrast, Ma describes an electrically conductive collar or ring disposed proximate to a workpiece in a plasma chamber. The outstanding Office Action states that Fig. 5 of Ma describes an apparatus including a susceptor (22), an electrostatic chuck (26), a ring member (unitary conductive collar) (56 or "58")<sup>1</sup>, and a lower ring body (dielectric shield) (48). However, as shown below in annotated Fig. 5 of Ma, an innermost circumference of the unitary conductive collar (56 or "58") is placed below the substrate (10), and the innermost circumference of the unitary conductive collar (56) is closer to the center of the substrate than is the periphery of the substrate. Accordingly, Ma does not disclose that an inner circumference of the ring member surrounds a periphery of the substrate to be processed.

Additionally, as recited in amended independent Claim 1, a gap is disposed between the innermost circumference of the ring member and the periphery of the substrate to be processed. However, as shown in Fig. 5 of Ma above, no gap is disposed between the innermost circumference of the unitary conductive collar (56) and the periphery of the substrate (10). According to Fig. 5 of Ma, a gap might be formed between a lower surface of the substrate (10)

<sup>1</sup> Fig. 5 shows reference number (58) where column nine of Ma describes reference number (56).

and an upper surface of the unitary conductive collar (56), but not between the innermost circumference of the unitary conductive collar (56) and the periphery of the substrate (10).

Furthermore, since Ma does not disclose a gap between the inner circumference of the ring member and the periphery of the substrate to be processed, Ma does not disclose a part of an upper surface of the lower ring body is placed below a gap between the innermost circumference of the ring member and the periphery of the substrate to be processed.

Accordingly, Ma does not teach or suggest the plasma processing apparatus recited in amended independent Claim 1. Therefore, it is respectfully requested that the rejection of Claim 1 and the claims depending therefrom be withdrawn.

Amended independent Claim 14 recites substantially similar features to those discussed above regarding amended Claim 1. Therefore, it is also respectfully requested that the rejection of Claim 14 and the claims depending therefrom be withdrawn.

New dependent Claims 22 and 24 recite that the whole lower ring is inserted into a groove formed on the susceptor. However, Ma describes only that the dielectric shield (48) is placed on the susceptor and not inserted into the susceptor.

New dependent Claims 23 and 25 recite that a thickness of the ring member is substantially equal to that of the substrate to be processed, and a height of an upper surface of the ring member is substantially equal to a height of an upper surface of the substrate to be processed. However, Ma describes that a thickness of the unitary conductive collar (56) is greater than that of the substrate (10), and the height of the upper surface of the unitary conductive collar (56) is not disclosed by Ma to be equal to the height of the upper surface of the substrate (10).

It is also respectfully submitted that Claims 2-11 and 15-19, directly or indirectly depending from Claims 1 or 14, patentably distinguish over any proper combination of the cited references for the at least same reasons indicated with respect to amended independent

Claims 1 and 14 and further because of the additional features recited in each of the dependent claims.

Regarding the features of dependent Claims 5, 6, 8, 16, and 17, the outstanding Office Action states:

Regarding claims 5, 6, 8, 16, 17: the claims depend upon the substrate regarding the material of construction, impedance, and thickness. Note that the invention is held to an apparatus which is what it is and not what it does, such that the substrate is not included in the apparatus, and the apparatus of Ma et al is inherently capable of construction a ring member relative to the substrate as recited. Note that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F. 2d 25 USPQ 69.<sup>2</sup>

Accordingly, the outstanding Office Action does not give patentable weight to the features of Claims 5, 6, 8, 16, and 17 that are described in terms of the substrate.

Applicants respectfully submit that the features of dependent Claims 5, 6, 8, 16, and 17 should be given patentable weight regardless of whether the features recite characteristics in terms of the substrate. Applicants further respectfully submit that characterizing features of an invention in terms of a substrate is not merely “the inclusion of material or article worked upon by a structure” as asserted in the outstanding Office Action. Rather, the features recited in dependent Claims 5, 6, 8, 16, and 17 recite particular structure of the invention **in terms of** the substrate.

The PTO’s Reviewing Court, in In re Stencil, stated:

The Commissioner argues that the failure of the lobes of the collar by radial compression and the resultant locking of the collar and pin together is not a distinguishing feature of the driver, but of the collar. The Commissioner cites *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977), and *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971), for the proposition that the description of the driver in the claims is merely functional, and that its patentability must be determined against all embodiments of drivers in the prior art.

---

<sup>2</sup> Outstanding Office Action, pages 3-4.

Appellant points out that the driver as claimed is indeed limited as to structure, the limiting structure being defined by the structure of the collar. For example, the driver is described in claim 1 as requiring: "the minimum distance between each flat and the rotational axis corresponding substantially to the radius of the collar at the location of the lobes after their plastic deformation".

**As a matter of claim draftsmanship, appellant is not barred from describing the driver in terms of the structure imposed upon it by the collar having plastically deformable lobes. The framework --the teachings of the prior art --against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims themselves are so limited.**

There is an extensive body of precedent on the question of whether a statement in a claim of purpose or intended use constitutes a limitation for purposes of patentability. See generally *Kropa v. Robie*, 187 F.2d 150, 155-59, 88 USPQ 478, 483-87 (CCPA 1951) and the authority cited therein, and cases compiled in 2 Chisum, Patents §8.06[1][d] (1987). Such statements often, although not necessarily, appear in the claim's preamble, as in Stencel's claims.

Whether a preamble of intended purpose constitutes a limitation to the claims is, as has long been established, a matter to be determined on the facts of each case in view of the claimed invention as a whole. *In re Duva*, 387 F.2d 402, 407, 156 USPQ 90, 94 (CCPA 1967); *In re Walles*, 366 F.2d 786, 790, 151 USPQ 185, 190 (CCPA 1966). The test in determining whether a claimed invention would have been obvious is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The cited references would not have taught or suggested the structure of the claimed driver in the absence of prior knowledge of Stencel's fastener system.<sup>3</sup>

Accordingly, Applicants are not barred from describing a device in terms of the structure imposed upon it by a substrate suitable for use in combination with the claimed invention. Rather, as discussed above in Stencel, while the claim is not directly limited to the substrate, the structure described in terms of the substrate does limit the claim. Accordingly, Applicants respectfully submit that the features recited in Claims 5, 6, 8, 16, and 17 characterized in terms of the substrate should be given patentable weight.

---

<sup>3</sup> In re Stencel, 4 USPQ2d 1071 at 1073 (Fed. Cir. 1987) (emphasis added). See also MPEP §2111.02(I).

Regarding the rejection of independent Claim 12 as anticipated by Ma, that rejection is respectfully traversed by the present response.

The invention recited in amended independent Claim 12 is directed to a plasma processing apparatus including a plasma processing chamber; a susceptor installed within the plasma processing chamber; an electrostatic chuck formed on the susceptor for mounting thereon a substrate to be processed; and a ring member disposed to surround a periphery of the substrate to be processed with a gap therebetween. Further, **the whole ring member is located directly on the electrostatic chuck and a lower surface of the ring member is higher than an upper surface of the electrostatic chuck.**

In contrast, Fig. 5 of Ma describes that the unitary conductive collar (56) located directly on the dielectric shield (48). Further, in Fig 5. of Ma, a lower surface of the unitary conductive collar (56) is lower than an upper surface of an electrostatic chuck (26).

Consequently, since Ma does not disclose the features of the invention recited in Claim 12, it is respectfully requested that the rejection of Claim 12 be withdrawn.

Further, new Claim 26 recites that a height of a lower surface of the ring member is substantially **equal** to a height of a lower surface of the substrate to be processed. However, Fig. 5 of Ma describes that the lower surface of the unitary conductive collar (56) is lower than a **lower** surface of the substrate (10).

Further, new Claim 27 recites that the entire ring member is placed on the electrostatic chuck. However, Fig. 5 of Ma describes that the unitary conductive collar (56) is placed around the electrostatic chuck (26).

It is also respectfully submitted that Claim 21, directly depending on Claim 12, patentably distinguishes over Ma for at least the same reasons as Claim 12 does, as well as for its own features.

Regarding the rejection of Claims 9 and 18 as obvious over Ma in view of Tong, that rejection is respectfully traversed by the present response. Claims 9 and 18 depend from amended independent Claims 1 and 14, respectively, and patentably distinguish over Ma for at least the same reasons as Claims 1 and 14 do.

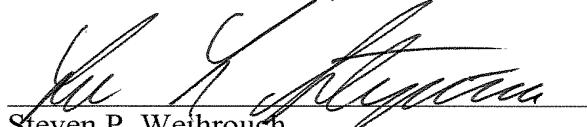
The outstanding Office Action relies on Tong for the specific materials of the ring member. However, Tong fails to remedy the deficiencies of Ma discussed above. For example, the edge ring (108), relied on in the outstanding Office Action to provide specific materials for the recited lower ring, is disposed directly on an adjustable RF coupling ring (106) and not on a susceptor. Additionally, the innermost circumference of the edge ring (108) and coupling ring (106) are closer to the center of the substrate than is the periphery of the substrate. Accordingly, Tong suffers from the same deficiencies as Ma. Thus, no reasonable combination of Ma and Tong would include all of the features of either of amended independent Claims 1 and 14, from which Claims 9 and 18 depend, respectively. Accordingly, Applicants respectfully submit that the rejection of Claims 9 and 18 is overcome.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. A Notice of Allowance for Claims 1-12, 14-19, and 21-27 is earnestly solicited.

Should Examiner MacArthur deem that any further action is necessary to place this application in even better form for allowance, she is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



\_\_\_\_\_  
Steven P. Weihrouch  
Attorney of Record  
Registration No. 32,829

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/07)

Lee L. Stepina  
Registration No. 56,837

I:\ATTY\LS\24s\247409US\247409US-AM-DUE-12-18-07.DOC